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EXAMINER	
TORRES, JUAN A	

ART UNIT	PAPER NUMBER
2631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/068,047	CHEN ET AL.	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 February 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: in page 9 paragraph [0037] the recitation "The can then be filtered" is improper.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishio (US 4039961). A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where

the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Ishio discloses the concept of a layered signal as indicated in the disclosure (page 2 paragraph [0009]) and this limitation had been taken into account in the present Office Action.

As per claims 1 and 23 Ishio discloses a tuner for receiving a layered signal and producing a layered in-phase signal and a layered quadrature signal (figure 5 block 17 column 4 line 11); an analog-to-digital converter for digitizing the layered in-phase signal and the layered quadrature signal (figure 5 block 16 column 4 line 7); a processor for decoding the layered in-phase signal and the layered quadrature signal to produce a signal layer in-phase signal and a single layer quadrature signal to produce one or more discrete layer signals (figure 5 block 16 column 4 line 7).

As per claims 2 and 24 Ishio discloses that the processor comprises a logic circuit (figure 5 blocks 16 column 4 line 7).

As per claims 3 and 26 Ishio discloses one or more decoders, each receiving and decoding one of the one or more discrete layer signals (figure 5 blocks 16 column 4 line 7).

As per claims 4 and 25 Ishio discloses the processor performs frequency acquisition on the layered quadrature signal (figure 5 blocks 16 column 4 line 17-41).

As per claims 5 and 27 Ishio discloses inherently that the processor comprises match filtering the layered in-phase signal and the layered quadrature signal (figure 5 blocks 16 column 4 line 7).

As per claims 6 and 28 Ishio discloses that the processor demodulates and decodes an upper layer signal from the layered in-phase signal and the layered quadrature signal to produce an upper one of the one or more discrete layer signals (figure 5 block 27 and 28 column 4 line 52).

As per claims 7 and 29 Ishio discloses that the processor produces an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracts the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the layered in-phase signal and the layered quadrature signal, respectively, to produce a lower layer in-phase signal and a lower layer quadrature signal of a lower one of the one or more discrete layer signals (figure 5 block 25 column 10 lines 42-52).

As per claims 8 and 30 Ishio discloses that the processor demodulates and decodes an upper layer signal from the layered in-phase signal and the layered quadrature signal to produce an upper one of the one or more discrete layer signals (figure 5 block 19 and 20 column 4 lines 14-26).

As per claims 9 and 31 Ishio discloses inherently that the processor comprises match filtering the layered in-phase signal and the layered quadrature signal (figure 5 blocks 16 column 4 line 7).

As per claims 10 and 32 Ishio discloses that layered in-phase signal and the layered quadrature signal are delayed to synchronize the subtraction (figure 5 delay line 23 column 4 line 25).

As per claims 11 and 33 Ishio discloses that delaying the layered in-phase signal and the layered quadrature signal are delayed by correlating to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal (figure 5 delay line 23 column 4 line 25).

As per claims 12 and 34 Ishio discloses producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal (figure 5 block 21 column 4 line 18).

As per claims 13 and 35 Ishio discloses inherently that the signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises finite impulse response matched filtering the ideal in-phase upper layer signal and the ideal quadrature upper layer signal (figure 1 block 19 column 6 line 22-40).

As per claims 14 and 36 Ishio discloses that the signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal. (figure 5 block 21 column 4 line 18).

As per claims 15 and 37 Ishio discloses inherently that the signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises amplitude and phase matching the ideal in-phase upper layer signal and the ideal

quadrature upper layer signal with the layered in-phase signal and the layered quadrature signal, respectively (figure 1 block 19 column 6 line 22-40).

As per claim 16 Ishio discloses a processor for decoding a layered signal into separate signal layers, comprising a first demodulator and first decoder for decoding an upper layer signal from the layered signal and providing the decoded upper layer signal at a first output (figure 5 block 16 column 4 lines 5-16); an encoder for generating an ideal upper layer signal from the decoded upper layer signal (figure 5 block 18 column 4 line 12); a signal processor for modifying the ideal upper layer signal to characterize transmission and processing effects (figure 5 block 21 column 4 line 18); a subtractor for subtracting the modified ideal upper layer signal from the layered signal to produce a lower layer signal (figure 5 block 25 column 10 lines 42-52); and a second demodulator and second decoder for decoding the lower layer signal and providing the decoded lower layer signal at a second output (figure 5 block 26 column 10 lines 47-52).

As per claim 17 Ishio discloses a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize amplitude and phase matching of the modified ideal upper layer signal and the layered signal (figure 5 delay line 23 column 4 line 25).

As per claim 18 Ishio discloses a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize subtraction of the modified ideal upper layer signal and the layered signal (figure 5 delay line 23 column 4 line 25).

As per claim 19 Ishio discloses that the signal processor performs finite impulse response matched filtering on the ideal upper layer signal (figure 5 block 16 column 4 lines 5-16).

As per claim 20 Ishio discloses that the signal processor performs finite impulse response matched filtering on the delayed layered signal (figure 5 block 16 column 4 lines 5-16).

As per claim 21 Ishio discloses that the signal processor applies a signal map to the ideal upper layer signal (figure 5 block 18 column 4 line 12).

As per claim 22 Ishio discloses that the signal processor amplitude and phase matches the ideal upper layer signal with the layered signal (figure 5 block 18 column 4 line 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arslan (US6574235) and further in view of Ishio (US 4039961). Arslan recites all the limitations of claims 1-37. Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art

to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 1-37.

As per claims 1 and 23 Arslan discloses an apparatus for receiving a non-coherent modulation signal, comprising a tuner for receiving a signal and producing a in-phase signal and a quadrature signal therefrom (figure 1 block 19 column 6 lines 29-31); an analog-to-digital converter for digitizing the in-phase signal and the quadrature signal (figure 1 block 19 column 6 lines 29-31); a processor for decoding the in-phase signal and the quadrature signal to produce a signal in-phase signal and a single quadrature signal (figure 4B block 102B column 6 lines 29-31); a digital-to-analog encoder for converting the single in-phase signal and the single quadrature signal to a single in-phase analog signal and a single quadrature analog signal (figure 4B block 104B column 10 line 64); and a modulator for modulating the single in-phase analog signal and the single quadrature analog signal to produce a single signal (figure 4B block 103B column 10 line 60). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to

increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 1 and 23.

As per claims 2 and 24 Arslan discloses that the processor comprises a logic circuit (figure 4B block 101B column 10 line 60). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 2 and 24.

As per claims 3 and 26 Arslan discloses one or more decoders, each receiving and decoding one of the one or more discrete signals (figure 4B blocks 102B and 110B column 10 line 63). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore,

it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 3 and 26.

As per claims 4 and 25 Arslan discloses the processor performs frequency acquisition on the quadrature signal (figure 1 block 19 column 6 line 22-40). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 4 and 25.

As per claims 5 and 27 Arslan discloses inherently that the processor comprises match filtering the in-phase signal and the layered signal (figure 1 block 19 column 6 line 22-40). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore,

it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 5 and 27.

As per claims 6 and 28 Arslan discloses that the processor demodulates and decodes a signal from one in-phase signal and the one quadrature signal to produce an upper one of the one or more discrete signals (figure 4B block SEQ2B column 10 lines 49-52). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 6 and 28.

As per claims 7 and 29 Arslan discloses that the processor produces an ideal signal including an ideal in-phase signal and an ideal quadrature signal from the decoded signal and subtracts the ideal in-phase signal and the ideal quadrature signal from the in-phase signal and the quadrature signal, respectively, to produce a in-phase signal and a quadrature signal of a one of the one or more discrete signals (figure 4B block 107B column 10 lines 59-62). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 7 and 29.

As per claims 8 and 30 Arslan discloses that the processor demodulates and decodes the in-phase signal and the quadrature signal to produce the one of the one or more discrete signals (figure 4B block SEQ1B column 10 lines 43-49). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 8 and 30.

As per claims 9 and 31 Arslan discloses inherently that the processor match filters the in-phase signal and the quadrature signal (figure 1 block 19 column 6 lines 30-34). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the

invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 9 and 31.

As per claims 10 and 32 Arslan discloses that in-phase signal and the quadrature signal are delayed to synchronize the subtraction (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 10 and 32.

As per claims 11 and 33 Arslan discloses that delaying the in-phase signal and the quadrature signal are delayed by correlating to the ideal in-phase signal and the ideal quadrature signal (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they

are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 11 and 33.

As per claims 12 and 34 Arslan discloses producing the ideal signal comprises signal processing the ideal in-phase signal and the ideal quadrature signal (figure 4D blocks 103D and 109D column 10 lines 43-45). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 12 and 34.

As per claims 13 and 35 Arslan discloses inherently that the signal processing the ideal in-phase signal and the ideal quadrature signal comprises finite impulse response matched filtering the ideal in-phase signal and the ideal quadrature signal (figure 1 block 19 column 6 lines 30-34). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered

signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 13 and 35.

As per claims 14 and 36 Arslan discloses signal processing the ideal in-phase signal and the ideal quadrature signal comprises applying a signal map to the ideal in-phase signal and the ideal quadrature signal, the signal map accounting for transmission distortions of the signal. (figure 4D blocks 104D and 112D column 11 lines 39-41). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 14 and 36.

As per claims 15 and 37 Arslan discloses inherently that the signal processing the ideal in-phase signal and the ideal quadrature signal comprises amplitude and

phase matching the ideal in-phase signal and the ideal quadrature signal with the in-phase signal and the quadrature signal, respectively (figure 1 block 19 column 6 line 22-40). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 15 and 37.

As per claim 16 Arslan discloses a processor for decoding a signal into separate signal, comprising a first demodulator and first decoder for decoding a signal from the other signal and providing the decoded signal at a first output (figure 4B blocks 101B and 102B column 10 lines 60 and 63); an encoder for generating an ideal signal from the decoded signal (figure 4B block 104B column 10 line 67); a signal processor for modifying the ideal signal to characterize transmission and processing effects (figure 4B block 105B column 10 line 61); a subtractor for subtracting the modified ideal signal from the other signal to produce a new signal (figure 4B block 107B column 10 line 61); and a second demodulator and second decoder for decoding the new signal and providing the decoded signal at a second output (figure 4B blocks 109B and 110B column 10 lines 59-67). Arslan doesn't specifically apply his teaching to the case of

layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 16.

As per claim 17 Arslan discloses a processor comprising a delay function correlated to an output of the signal processor to appropriately delay the signal to synchronize amplitude and phase matching of the modified ideal signal and the other signal (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 17.

As per claim 18 Arslan discloses a processor comprising a delay function correlated to an output of the signal processor to appropriately delay the first signal to

synchronize subtraction of the modified ideal second layer signal and the first signal (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 18.

As per claim 19 Arslan discloses a processor that performs finite impulse response matched filtering on the ideal signal (figure 1 block 19 column 6 lines 30-34). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 19.

As per claim 20 Arslan discloses a processor that performs finite impulse response matched filtering on the delayed signal (figure 1 block 19 column 6 lines 30-34). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 20.

As per claim 21 Arslan discloses a processor that applies a signal map to the ideal signal (figure 4B block 104B column 10 lines 65-67). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 21.

As per claim 22 Arslan discloses a processor that amplitude and phase matches the ideal signal with the other signal (figure 4B block 104B column 10 lines 65-67). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 22.

Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishio (US 4039961) and further in view of Anderson (US 6297691). Ishio recites all the limitations of claims 1-37 (see above). Ishio doesn't specifically apply his teaching to the case of non-coherence signal. Anderson specifically discloses de demodulation of coherence and non-coherent in-phase and quadrature signals modulated signals. Ishio and Anderson are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the reception of non-coherence signals as disclosed by Anderson. The suggestion/motivation for doing so would have been to demodulate coherence and non-coherence signals reducing the cost of the decoder and to have compatibility with other systems (Anderson column 2 lines 46-61).

Therefore, it would have been obvious to combine Ishio with Anderson to obtain the invention as specified in claims 1-37.

Claims 5, 9, 13, 15, 27, 31, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishio (US 4039961) as applied to claims 1, 7, 12, 23, 29 and 34, and further in view of Ben-Efraim (US 5999793).

As per claims 5 and 27 Ishio teaches claims 1 and 23. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 5 and 27.

As per claims 9 and 31 Ishio teaches claims 7 and 29. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to

maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 9 and 31.

As per claims 13 and 35 Ishio teaches claims 12 and 34. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 13 and 35.

As per claims 15 and 37 Ishio teaches claims 12 and 34. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-

Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 15 and 37.

Claims 5, 9, 13, 15, 27, 31, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arslan (US6574235) as applied to claims 1, 7, 12, 23, 29 and 34, and further in view of Ben-Efraim (US 5999793).

As per claims 5 and 27 Arslan teaches claims 1 and 23. Arslan doesn't teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 5 and 27.

As per claims 9 and 31 Arslan teaches claims 7 and 29. Arslan doesn't teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been

to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 9 and 31.

As per claims 13 and 35 Arslan teaches claims 12 and 34. Arslan doesn't teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 13 and 35.

As per claims 15 and 37 Arslan teaches claims 12 and 34. Arslan doesn't teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column

3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 15 and 37.

Double Patenting

Claims 1, 2, 5, 6, 7, 10, 12, 13, 14, 15, 23, 24, 27, 28, 29, 32, 34, 35, 36 and 37 of this application conflict with claims 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 19, 22, 23, 26, 27, 28, 29 and 30 respectively of Application No. 10/068,039. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 5, 6, 7, 10, 12, 13, 14, 15, 23, 24, 27, 28, 29, 32, 34, 35, 36 and 37 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 19, 22, 23, 24, 25, 26, 27, 28, 29 and 30 respectively of copending Application No. 10/068,039. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims in the present application are broader in scope.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03-30-2005
Juan Alberto Torres

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MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER